

REMARKS

Reconsideration of the pending claims in view of the above amendments and following remarks is respectfully requested. Claims 1, 4, 6, and 7 are amended for clarity, and are supported by the claims as originally filed and the specification. Claims 10-15 are added, and are supported by claim 4 as originally filed and the specification.

Applicants thank Examiner Shosho for consideration and acknowledgement of Applicants' Information Disclosure Statement and Form PTO 1449, filed October 16, 2001.

Restriction Requirement

Applicants thank Examiner Shosho for the removal of the Restriction Requirement, as indicated in the Examiner Interview Summary Record of June 19, 2003. The Restriction Requirement was previously imposed by Examiner Schwartz in a telephonic interview with Applicants' representative.

35 USC 119(b)

With regard to the Examiner's comment that Applicants have not filed a certified copy of the UK Patent Application to which the present application claims priority, it is submitted that a certified copy of the priority application (certified on 3rd May 2001) was filed with the present application on 16th October 2001. A copy of the front page of the certified application and a copy of the date-stamped post-card indicating receipt of the certified copy by the U.S. Patent and Trademark Office are attached. Acknowledgement of receipt of the certified Application is respectfully requested.

35 USC § 112

Claims 1-9 stand rejected under 35 USC § 112, second paragraph. Claim 1 is amended to reflect proper Markush group language. Claim 4 is amended to remove alternative ranges. Applicants submit reconsideration and withdrawal of the rejection of claims 1-9 under 35 USC § 112, second paragraph, is in order.

35 USC § 102(b)

Claims 1-4, 8, and 9 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by GB-A-2316890. According to the Office Action, GB-A-2316890 discloses coating fluid for a coating on a support for use in ink jet printing comprising liquid having therein a binder of polyvinyl alcohol, an inorganic oxide such as silica or alumina, and a polymeric cross-linking agent such as urea resin. The cross-linking agent is present in an amount of 5-12 parts per 100 parts polyvinyl alcohol. The inorganic oxide is present in an amount of 30-150 parts per 50-70 parts polyvinyl alcohol. A calculation of a ratio of polyvinyl alcohol to polymeric crosslinking agent is 20:1 to 8.3:1, and a calculation of a ratio of inorganic oxide to polyvinyl alcohol is 2.4:1 to 3:1, as reported in the Office Action. A ratio of inorganic oxide to polymeric crosslinking agent is calculated as 16.7:1, based on Example 4, according to the Office Action. It is stated in the Office Action that the functional groups on the urea resin would react with the hydroxide groups of the inorganic oxide. For at least the following reasons, Applicants traverse the rejection.

GB-A-2316890 relates to a dual image recording means whereby base images can be recorded by ink-jet, and a second image can be recorded by pen-plotter. The recording film of GB-A-2316890 includes a substrate film and a composite recording layer comprising a polyvinyl alcohol resin (component (a)) and polyvinyl pyrrolidone resin (component (b)), a crosslinking agent, and an inorganic powder for surface roughening. Both polyvinyl alcohol resin and polyvinyl pyrrolidone resin can be considered binder polymers, as taught, for example, in Applicants' specification at page 3, lines 19-23. GB-A-2316890 does not disclose the purpose of the crosslinking agent, and does not indicate that it crosslinks with the inorganic surface roughening agent. Further, there is no specific disclosure in GB-A-2316890 of any functional groups on the crosslinking agent for reaction with the inorganic surface roughening agent. The only specifically disclosed crosslinking agent is a urea resin, which is not clearly defined, and which is not disclosed as capable of reacting with the inorganic surface roughening agent. The inorganic surface roughening agent can be silica. In contrast to the statement in the Office Action, the ratio of inorganic surface roughening agent to binder disclosed in GB-A-2316890 is 30 to 150 parts by weight inorganic surface roughening agent to 100 parts by weight of the total amount of components (a) and (b) (*see* page 7, lines 17-20), or 0.3:1 to 1.5:1.

Independent Claim 1 as originally filed, from which Claims 2-4, 8, and 9 depend, is directed to a coating fluid for forming a coating on a support, wherein the fluid comprises a liquid medium having dispersed therein an inorganic oxide, a binder polymer, and a polymeric crosslinking agent having functional groups for reaction with the inorganic oxide. For at least the reasons discussed above, it is submitted that original Claim 1 is novel over GB-A-2316890. However, to further prosecution, Claim 1 has been amended to include some of the subject matter of original Claim 4, such that the relative amount of inorganic oxide to binder polymer is from 50:1 to 2:1, the amount being by weight on a dry basis. The claimed ratio of inorganic oxide to binder polymer is not taught or suggested by GB-A-2316890, which sets forth a ratio of 0.3:1 to 1.5:1, as described above. Further, GB-A-2316890 actually teaches away from the claimed ratio because, as stated on page 7, lines 24-30, of GB-A-2316890, when the amount of silica is increased, fine lines cannot be drawn by a pen plotter due to blurring of the line or clogging of the pen plotter, thus preventing the production of sharp images. Accordingly, GB-A-2316890 does not disclose or suggest the subject matter of independent Claim 1, or Claims 2-4, 8, and 9 dependent therefrom. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Claims 1, 2, 5, 7, 8, and 9 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Sugai et al., U.S. Patent No. 5,562,975. According to the Office Action, Sugai et al. discloses coating fluid for a coating on a support for use in ink jet printing comprising a liquid medium having dispersed therein a binder, 100 parts silica, and 1-70 parts polymeric crosslinking agent, such as silanol modified polyvinyl alcohol, that reacts with the silica. For at least the following reasons, Applicants traverse the rejection.

US-A-5562975 (Sugai et al) relates to a coating, as a receiving layer, on a hot melt ink thermal transfer recording sheet, to provide improved transfer retention onto the recording sheet. The receiving layer comprises a silicon-containing, modified polyvinyl alcohol and an inorganic pigment comprising fine amorphous silica particles (see column 2, lines 30-33). The receiving layer may further, optionally, comprise an additional polymer material such as, for example, polyvinyl pyrrolidone (see column 3, line 37). The Examples in Sugai et al. relate only to a coating for a receiving layer having silanol group-containing modified polyvinyl alcohol and amorphous silica. Sugai et al. does not indicate whether the

silanol group-containing modified polyvinyl alcohol is a crosslinking agent or a binder, as those terms are defined in Applicants' specification.

Claim 1, from which Claims 2, 5, 7, 8, and 9 depend, is directed to a coating fluid for forming a coating on a support, wherein the fluid comprises a liquid medium having dispersed therein an inorganic oxide, a binder polymer, and a polymeric crosslinking agent having functional groups for reaction with the inorganic oxide. If Sugai et al. includes an inorganic oxide and a binder polymer of silanol group-containing modified polyvinyl alcohol, Sugai et al. has no cross-linking agent, and thus does not disclose or suggest the subject matter of the claimed invention. If Sugai et al. includes an inorganic oxide, a crosslinking agent of silanol group-containing modified polyvinyl alcohol, and a binder polymer such as polyvinyl pyrrolidone, Sugai et al. still does not disclose or suggest the subject matter of at least Claim 1 because there is no disclosure in Sugai et al. of a ratio of the inorganic oxide (silica) to a binder polymer. Claim 1 sets forth a ratio of inorganic oxide to binder polymer from 50:1 to 2:1. Accordingly, Sugai et al. does not disclose or suggest the subject matter of independent Claim 1, or Claims 2, 5, 7, 8, and 9 dependent therefrom. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

Claims 1-3 and 5-9 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by EP-A-0976572. According to the Office Action, EP-A-976572 discloses coating fluid for a coating on a support for use in ink jet printing. The coating fluid comprises a liquid medium having dispersed therein a binder such as polyvinyl alcohol, silica, and a polymeric crosslinking agent, such as a silanol modified protein that reacts with the silica. It is asserted in the Office Action that, although EP-A-976572 discloses two fluids (ink with silica, and a composition with silanol modified protein and binder), after printing one coating fluid is present on the support, wherein the coating fluid comprises silica, silanol modified protein, and a binder. For at least the following reasons, Applicants traverse the rejection.

EP-A-0976572 relates to an ink-receiver combination having improved durability and water resistance. That is, EP-A-0976572 discloses a printed receiver. EP-A-0976572 discloses a receiver having an ink-receiving layer containing a binder such as a polyvinyl alcohol, and a crosslinker (*see* page 4, lines 9-19). The ink of the ink-receiver combination of EP-A-0976572 preferably comprises colloidal silica. According to page 3, lines 13-23, EP-A-0976572 is directed to methods of preparing

ink jet ink images, which methods include coating the ink receiving layer on a substrate, then image-wise depositing the ink on the ink receiving layer. According to one method, the ink receiving layer is dried before image-wise depositing the ink on the ink receiving layer.

Independent Claim 1, from which Claims 2, 3, and 5-9 depend, is directed to a coating fluid for forming a coating on a support, wherein the fluid comprises a liquid medium having dispersed therein an inorganic oxide, a binder polymer, and a polymeric crosslinking agent having functional groups for reaction with the inorganic oxide. The coating fluid in combination with a support forms a receiver for use in ink jet printing, wherein the ink jet ink is applied image-wise to the coated support. *See* Claims 8 and 9, and the specification at page 2, lines 13-18.

EP-A-0976572 does not disclose or suggest the subject matter of the claimed invention. In particular, EP-A-0976572 does not disclose or suggest a coating comprising an inorganic oxide, a binder polymer, and a polymeric crosslinking agent having functional groups for reaction with the inorganic oxide. As described above, the ink receiving layer of EP-A-0976572, which contains a binder and a crosslinker, is applied to a support before image-wise application of the silica-containing ink. An inorganic oxide is not present in the coating forming the ink receiving layer of EP-A-0976572. Further, even if the combination of the ink receiving layer and image-wise applied ink jet ink of EP-A-0976572 can be said to form a single layer when combined, EP-A-0976572 still does not disclose the subject matter of the claimed invention because the combined image receiving layer and ink jet ink of EP-A-0976572 results in inked images on the receiving layer. This teaches away from the claimed invention, which is directed to a coated support useful as an ink jet ink receiver, in other words, an unprinted ink jet ink receiver. Accordingly, EP-A-0976572 does not disclose or suggest the subject matter of independent Claim 1, or Claims 2, 3, or 5-9 dependent therefrom. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

35 USC § 103(a)

Claim 6 was rejected under 35 USC § 103(a) over Sugai et al., U.S. Patent No. 5,562,975, in view of EP-A-0976952. The Office Action admits Sugai et al. does not disclose the claimed polymeric crosslinking agent. The Office Action relies on EP-A-0976952 for a teaching of the equivalence and interchangeability of

silanol modified protein as claimed by Applicants with silanol modified polyvinyl alcohol as disclosed by Sugai et al. for reaction with silica to produce water resistant and durable images. For at least the following reasons, Applicants traverse the rejection.

As discussed above, if Sugai et al. includes an inorganic oxide and a binder polymer of silanol group-containing modified polyvinyl alcohol, Sugai et al. has no cross-linking agent, and thus does not disclose or suggest the subject matter of the claimed invention. If Sugai et al. includes an inorganic oxide, a crosslinking agent of silanol group-containing modified polyvinyl alcohol, and a binder polymer such as polyvinyl pyrrolidone, Sugai et al. still does not disclose or suggest the subject matter of the invention because there is no disclosure of a ratio of the inorganic oxide (silica) to an optional binder polymer. Further, as admitted by the Examiner, Sugai et al. does not disclose the claimed polymeric crosslinking agent.

As discussed above, EP-A-0976572 relates to an ink-receiver combination, or a printed receiver. The ink receiving layer of EP-A-0976572 does not include at least an inorganic oxide, and therefore can not disclose or suggest a ratio of inorganic oxide to binder in the ink receiving layer. Thus, EP-A-0976572 does not overcome the deficiencies of Sugai et al.

Further, it is submitted that one skilled in the art would not be motivated to combine the teachings of the cited documents. Sugai et al. is concerned with a receiving layer on a recording sheet for use in hot melt ink thermal transfer, wherein the receiving layer improves ink transfer retention on the recording sheet. EP-A-0976572 relates to an ink-receiver combination, that is, a printed receiver, having improved durability and water resistance. One skilled in the art would not look to a printed receiver for modifications to improve unprinted receiver properties.

As discussed herein, there is no motivation provided by either reference, alone or in combination, to form a coating fluid for coating on a support, wherein the fluid comprises a liquid medium having dispersed therein an inorganic oxide, a binder polymer, and a polymeric crosslinking agent having functional groups for reaction with the inorganic oxide, wherein a ratio of inorganic oxide to binder polymer in the coating is from 50:1 to 2:1. Accordingly, Sugai et al. in view of EP-A-0976952 does not disclose or suggest the subject matter of Claim 6. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

In view of the foregoing remarks, reconsideration of the above-identified patent application is respectfully requested. Prompt and favourable action by the Examiner is earnestly solicited. Should the Examiner require anything further, the Examiner is invited to contact Applicants' representative.

Respectfully submitted



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Attachment:

copy of certified application and date-stamped post-card